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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/301,704	04/29/99	SCHEMBRI	54259.000003

021967
HUNTON AND WILLIAMS
1900 K STREET N W
WASHINGTON DC 20006

HM12/1010

EXAMINER

ART UNIT	PAPER NUMBER
1631	//

DATE MAILED:

10/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks



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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER
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11

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 C.F.R. § 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 C.F.R. §§ 1.821-1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures (also see Raw Sequence Listing Error Report).

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the following reasons: Claims 1-32 make reference to specific polynucleotide and/or polypeptide sequences; these references must contain a sequence identifier of the form: SEQ ID NO: X. Appropriate correction is required

APPLICANT IS GIVEN 30 days FROM THE DATE OF THIS LETTER WITHIN WHICH TO COMPLY WITH THE SEQUENCE RULES, 37 C.F.R. §§ 1.821-1.825. Failure to comply with these requirements will result in ABANDONMENT of the application under 37 C.F.R. § 1.821(g). Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 C.F.R. § 1.136. In no case may an applicant extend the period for response beyond the six month statutory period. Direct the response to the undersigned. Applicant is requested to return a copy of the attached Notice to Comply with the response.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Jeffrey S. Lundgren whose telephone number is (703) 306-3221. The Examiner can normally be reached on Monday-Friday from 7:00 AM to 5:00 PM (EST).

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Michael Woodward, can be reached at (703) 308-4028.

Any inquiries of a general nature relating to this application should be directed to the Technology Center Receptionist whose telephone number is (703) 308-0196.

Papers related to this application may be submitted by facsimile transmission. Papers should be faxed to Group 1631 using (703) 308-0294. Please notify the Examiner of incoming facsimiles prior to sending papers to the aforementioned fax number. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989).

Jeffrey S. Lundgren, Ph.D.

JOHN S. BRUSCA, PH.D.
PRIMARY EXAMINER

PAGE: 1

RAW SEQUENCE LISTING PATENT APPLICATION US/09/301,704A

DATE: 08/26/1999
TIME: 11:01:29

Input Set: I301704A.RAW

This Raw Listing contains the General Information
Section and up to first 5 pages.

1 <110> APPLICANT: Schembri, Mark Andrew
2 Klemm, Per
3 <120> TITLE OF INVENTION: Novel multifunctional adhesin proteins
4 and their display in microbial cells
5 <130> FILE REFERENCE: 21352 PC 1
6 <140> CURRENT APPLICATION NUMBER: US/09/301,704A
7 <141> CURRENT FILING DATE: 1999-04-29
8 <150> EARLIER APPLICATION NUMBER: PA 1998 00598
9 <151> EARLIER FILING DATE: 1998-04-30
10 <160> NUMBER OF SEQ ID NOS: 46
11 <170> SOFTWARE: FastSEQ for Windows Version 3.0
12 <210> SEQ ID NO 1
13 <211> LENGTH: 300
14 <212> TYPE: PRT
15 <213> ORGANISM: E. coli PC31 FimH
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18 1 5 10 15
19 Val Asn Ala Trp Ser Phe Ala Cys Lys Thr Ala Asn Gly Thr Ala Ile
20 20 25 30
21 Pro Ile Gly Gly Gly Ser Ala Asn Val Tyr Val Asn Leu Ala Pro Val
22 35 40 45
23 Val Asn Val Gly Gln Asn Leu Val Val Asp Leu Ser Thr Gln Ile Phe
24 50 55 60
25 Cys His Asn Asp Tyr Pro Glu Thr Ile Thr Asp Tyr Val Thr Leu Gln
26 65 70 75 80
27 Arg Gly Ser Ala Tyr Gly Gly Val Leu Ser Asn Phe Ser Gly Thr Val
28 85 90 95
29 Lys Tyr Ser Gly Ser Ser Tyr Pro Phe Pro Thr Thr Ser Glu Thr Pro
30 100 105 110
31 Arg Val Val Tyr Asn Ser Arg Thr Asp Lys Pro Trp Pro Val Ala Leu
32 115 120 125
33 Tyr Leu Thr Pro Val Ser Ser Ala Gly Gly Val Ala Ile Lys Ala Gly
34 130 135 140
35 Ser Leu Ile Ala Val Leu Ile Leu Arg Gln Thr Asn Asn Tyr Asn Ser
36 145 150 155 160
37 Asp Asp Phe Gln Phe Val Trp Asn Ile Tyr Ala Asn Asn Asp Val Val
38 165 170 175
39 Val Pro Thr Gly Gly Cys Asp Val Ser Ala Arg Asp Val Thr Val Thr
40 180 185 190
41 Leu Pro Asp Tyr Pro Gly Ser Val Pro Ile Pro Leu Thr Val Tyr Cys
42 195 200 205
43 Ala Lys Ser Gln Asn Leu Gly Tyr Tyr Leu Ser Gly Thr His Ala Asp
44 210 215 220

Does Not Comply
Corrected Diskette Needed

MS-2-3

PAGE: 2

RAW SEQUENCE LISTING PATENT APPLICATION US/09/301,704A

DATE: 08/26/1999
TIME: 11:01:29

Input Set: I301704A.RAW

45 Ala Gly Asn Ser Ile Phe Thr Asn Thr Ala Ser Phe Ser Pro Ala Gln
46 225 230 235 240
47 Gly Val Gly Val Gln Leu Thr Arg Asn Gly Thr Ile Ile Pro Ala Asn
48 245 250 255
49 Asn Thr Val Ser Leu Gly Ala Val Gly Thr Ser Ala Val Ser Leu Gly
50 260 265 270
51 Leu Thr Ala Asn Tyr Ala Arg Thr Gly Gly Gln Val Thr Ala Gly Asn
52 275 280 285
53 Val Gln Ser Ile Ile Gly Val Thr Phe Val Tyr Gln
54 290 295 300

55 <210> SEQ ID NO 2

56 <211> LENGTH: 7

57 <212> TYPE: PRT

58 <213> ORGANISM: Artificial Sequence

59 <220> FEATURE:

60 <221> NAME/KEY: BINDING

61 <222> LOCATION: 2..4

62 <223> OTHER INFORMATION: Binding motif for binding metal oxides

63 <400> SEQUENCE: 2

64 His Xaa Xaa Xaa His Arg Ser

65 1 5

66 <210> SEQ ID NO 3

67 <211> LENGTH: 7

68 <212> TYPE: PRT

69 <213> ORGANISM: Artificial Sequence

70 <220> FEATURE:

71 <221> NAME/KEY: BINDING

72 <222> LOCATION: 2..4

73 <223> OTHER INFORMATION: Binding motif for binding metal oxides

74 <400> SEQUENCE: 3

75 Arg Xaa Xaa Xaa His Arg Ser

76 1 5

77 <210> SEQ ID NO 4

78 <211> LENGTH: 7

79 <212> TYPE: PRT

80 <213> ORGANISM: Artificial Sequence

81 <220> FEATURE:

82 <221> NAME/KEY: BINDING

83 <222> LOCATION: 3..4

84 <223> OTHER INFORMATION: Binding motif for binding metal oxides

85 <400> SEQUENCE: 4

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87 1 5

88 <210> SEQ ID NO 5

89 <211> LENGTH: 7

90 <212> TYPE: PRT

91 <213> ORGANISM: Artificial Sequence

92 <220> FEATURE:

93 <221> NAME/KEY: BINDING

94 <222> LOCATION: 3..4

See item 12 on Error Summary sheet

see item 10 on Error Summary sheet

item 12

item 10

item 12

item 10

item 12

W-->

W-->

W-->

PAGE: 3

RAW SEQUENCE LISTING
 PATENT APPLICATION US/09/301,704A

DATE: 08/26/1999
 TIME: 11:01:29

Input Set: I301704A.RAW

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 96 <400> SEQUENCE: 5
 W--> 97 Ser Arg Xaa Xaa His Arg Ser
 98 1 5
 99 <210> SEQ ID NO 6 *Den 10*
 100 <211> LENGTH: 7
 101 <212> TYPE: PRT
 102 <213> ORGANISM: Artificial Sequence *Den 12*
 103 <220> FEATURE:
 104 <221> NAME/KEY: BINDING
 105 <222> LOCATION: 3..4
 106 <223> OTHER INFORMATION: Binding motif for binding metal oxides
 107 <400> SEQUENCE: 6 *Den 10*
 W--> 108 Thr Lys Xaa Xaa His Arg Ser
 109 1 5
 110 <210> SEQ ID NO 7
 111 <211> LENGTH: 7
 112 <212> TYPE: PRT
 113 <213> ORGANISM: Artificial Sequence *Den 12*
 114 <220> FEATURE:
 115 <221> NAME/KEY: BINDING
 116 <222> LOCATION: 3..4
 117 <223> OTHER INFORMATION: Binding motif for binding metal oxides
 118 <400> SEQUENCE: 7 *Den 10*
 W--> 119 Thr Arg Xaa Xaa His Arg Ser
 120 1 5
 121 <210> SEQ ID NO 8
 122 <211> LENGTH: 24
 123 <212> TYPE: DNA
 124 <213> ORGANISM: Artificial Sequence
 125 <220> FEATURE:
 126 <223> OTHER INFORMATION: Oligonucleotide for the construction of a
 127 double-stranded poly histidine segment (Example 1)
 128 <400> SEQUENCE: 8
 129 gatctcatca ccatcatcac catg 24
 130 <210> SEQ ID NO 9
 131 <211> LENGTH: 24
 132 <212> TYPE: DNA
 133 <213> ORGANISM: Artificial Sequence
 134 <220> FEATURE:
 135 <223> OTHER INFORMATION: Oligonucleotide for the construction of a
 136 double-stranded poly histidine segment (Example 1)
 137 <400> SEQUENCE: 9
 138 gatccatggt gatgatggtg atga 24
 139 <210> SEQ ID NO 10
 140 <211> LENGTH: 54
 141 <212> TYPE: DNA
 142 <213> ORGANISM: Artificial Sequence
 143 <220> FEATURE:
 144 <221> NAME/KEY: unsure

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RAW SEQUENCE LISTING PATENT APPLICATION US/09/301,704A

DATE: 08/26/1999
TIME: 11:01:29

Input Set: I301704A.RAW

145 <222> LOCATION: 13..39
 146 <223> OTHER INFORMATION: v indicates equal molar amounts of A, C, and G; and
 147 n indicates equal molar amounts of A, C, T, G in
 148 template oligonucleotide
 149 <400> SEQUENCE: 10
 w--OK 150 ggacgcagat ctvnnvnnvn nvnnvnnvnn vnnvnnvnnna gatctagcac cagt 54
 151 <210> SEQ ID NO 11
 152 <211> LENGTH: 15
 153 <212> TYPE: DNA
 154 <213> ORGANISM: Artificial Sequence
 155 <220> FEATURE:
 156 <223> OTHER INFORMATION: Primer oligonucleotide
 157 <400> SEQUENCE: 11
 158 actggtgcta gatct 15
 159 <210> SEQ ID NO 12
 160 <211> LENGTH: 13
 161 <212> TYPE: PRT
 162 <213> ORGANISM: Artificial Sequence
 163 <220> FEATURE:
 164 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
 165 to metal oxides
 166 <400> SEQUENCE: 12
 167 Arg Ser Val Val Arg Pro Lys Ala Ala Thr Asn Arg Ser
 168 1 5 10
 169 <210> SEQ ID NO 13
 170 <211> LENGTH: 13
 171 <212> TYPE: PRT
 172 <213> ORGANISM: Artificial Sequence
 173 <220> FEATURE:
 174 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
 175 to metal oxides
 176 <400> SEQUENCE: 13
 177 Arg Ser Arg Ile Arg His Arg Leu Val Gly Gln Arg Ser
 178 1 5 10
 179 <210> SEQ ID NO 14
 180 <211> LENGTH: 24
 181 <212> TYPE: PRT
 182 <213> ORGANISM: Artificial Sequence
 183 <220> FEATURE:
 184 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
 185 to metal oxides
 186 <400> SEQUENCE: 14
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 188 1 5 10 15
 189 Phe Glu Thr Pro Arg Val Arg Ser
 190 20
 191 <210> SEQ ID NO 15
 192 <211> LENGTH: 24
 193 <212> TYPE: PRT
 194 <213> ORGANISM: Artificial Sequence

PAGE: 5

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/301,704A

DATE: 08/26/1999
TIME: 11:01:29

Input Set: I301704A.RAW

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195 <220> FEATURE:
196 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
197     to metal oxides
198 <400> SEQUENCE: 15
199     Arg Ser Ala Pro Gln Thr Gly Arg Pro Asn Asn Arg Ser Leu Pro Leu
200         1             5             10             15
201     Gly Asn Arg Asp Met Gln Arg Ser
202         20
203 <210> SEQ ID NO 16
204 <211> LENGTH: 13
205 <212> TYPE: PRT
206 <213> ORGANISM: Artificial Sequence
207 <220> FEATURE:
208 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
209     to metal oxides
210 <400> SEQUENCE: 16
211     Arg Ser Val Gln Asn Asp Arg Ile Val Ala Gly Arg Ser
212         1             5             10
213 <210> SEQ ID NO 17
214 <211> LENGTH: 13
215 <212> TYPE: PRT
216 <213> ORGANISM: Artificial Sequence
217 <220> FEATURE:
218 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
219     to metal oxides
220 <400> SEQUENCE: 17
221     Arg Ser Tyr Pro Pro Phe His Asn Asn Asp His Arg Ser
222         1             5             10
223 <210> SEQ ID NO 18
224 <211> LENGTH: 24
225 <212> TYPE: PRT
226 <213> ORGANISM: Artificial Sequence
227 <220> FEATURE:
228 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
229     to metal oxides
230 <400> SEQUENCE: 18
231     Arg Ser Asn Thr Arg Met Thr Ala Arg Gln His Arg Ser Ala Asn His
232         1             5             10             15
233     Lys Ser Thr Gln Arg Ala Arg Ser
234         20
235 <210> SEQ ID NO 19
236 <211> LENGTH: 24
237 <212> TYPE: PRT
238 <213> ORGANISM: Artificial Sequence
239 <220> FEATURE:
240 <223> OTHER INFORMATION: Sequence conferring the ability of cells to adhere
241     to metal oxides
242 <400> SEQUENCE: 19
243     Arg Ser Leu Ala Ile Asp Gly Thr Asp Val Gln Arg Ser Lys Pro Leu
244         1             5             10             15

```

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

✓FYI

Input Set: I301704A.RAW

Line	? Error/Warning	Original Text
64	W "N" or "Xaa" used: Feature required	His Xaa Xaa Xaa His Arg Ser
75	W "N" or "Xaa" used: Feature required	Arg Xaa Xaa Xaa His Arg Ser
86	W "N" or "Xaa" used: Feature required	Ser Lys Xaa Xaa His Arg Ser
97	W "N" or "Xaa" used: Feature required	Ser Arg Xaa Xaa His Arg Ser
108	W "N" or "Xaa" used: Feature required	Thr Lys Xaa Xaa His Arg Ser
119	W "N" or "Xaa" used: Feature required	Thr Arg Xaa Xaa His Arg Ser
150	W "N" or "Xaa" used: Feature required	ggacgcagat ctvnnvnnvn nvnnvnnvnn vnnvnnvn
416	W "N" or "Xaa" used: Feature required	Ser Lys Xaa Xaa Ala Arg
427	W "N" or "Xaa" used: Feature required	Ser Arg Xaa Xaa Ala Arg
438	W "N" or "Xaa" used: Feature required	Thr Lys Xaa Xaa Ala Arg
449	W "N" or "Xaa" used: Feature required	Thr Arg Xaa Xaa Ala Arg
460	W "N" or "Xaa" used: Feature required	Arg Xaa Xaa Xaa His Arg Ser

NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES

Applicant must file the items indicated below within the time period set the Office action to which the Notice is attached to avoid abandonment under 35 U.S.C. § 133 (extensions of time may be obtained under the provisions of 37 CFR 1.136(a)).

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 C.F.R. 1.821 - 1.825 for the following reason(s):

- ☒ 1. This application clearly fails to comply with the requirements of 37 C.F.R. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998).
- ☐ 2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 C.F.R. 1.821(c).
- ☐ 3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 C.F.R. 1.821(e).
- ☒ 4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 C.F.R. 1.822 and/or 1.823, as indicated on the attached copy of the marked -up "Raw Sequence Listing."
- ☐ 5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A Substitute computer readable form must be submitted as required by 37 C.F.R. 1.825(d).
- ☐ 6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 C.F.R. 1.821(e).
- ☐ 7. Other: _____

Applicant Must Provide:

- ☒ An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".
- ☒ An initial or substitute paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification.
- ☒ A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.825(b) or 1.825(d).

For questions regarding compliance to these requirements, please contact:

For Rules Interpretation, call (703) 308-4216

For CRF Submission Help, call (703) 308-4212

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